# IDAHO DEPARTMENT OF FISH & GAME

Jerry M. Conley, Director

FEDERAL AID TO FISH AHD WILDLIFE RESTORATION Job Performance Report

Project F-73-R-3

Fishery Research



SUBPROJECT II: SALMON AND STEELHEAD INVESTIGATIONS Study II: Salmon Spawning Ground Surveys

Period Covered: 1 March 1980 to 28 February 1981 by

David W. Ortmann, Anadromous Fisheries Manager Ronald L. Lindland, Regional Fishery Biologist Kent W. Ball, Regional Fishery Biologist Will W. Reid, Regional Fishery Manager

April, 1981

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# JOB PERFORMANCE REPORT

State of

Idaho

Name: SALMON AND STEELHEAD INVESTIGATIONS

Project No.

F-73-R-3

Title: Salmon Spawning Ground Surveys

Study

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Period Covered: 1 March 1980 to 28 February 1981

# **ABSTRACT**

Each year regional fishery biologists survey major chinook salmon spawning areas in their respective regions to count the number of redds constructed in trend count areas and to obtain age and sex composition data. The data are made available for trend analysis, management and research use.

Redd counts, sex and age data for 1980 are presented in a series of attached tables and maps.

Authors:

David W. Ortmann, Anadromous Fisheries Manager Ronald L. Lindland, Regional Fishery Biologist Kent W. Ball, Regional Fishery Biologist Will W. Reid, Regional Fishery Manager

#### RECOMMENDATIONS

The redd count surveys, sex and age composition data collections should be continued to provide management data.

#### **OBJECTIVES**

To obtain an index to spawning escapement by counting chinook salmon redds in established trend areas.

To obtain age and sex composition data of the chinook spawning population.

# **TECHNIQUES USED**

Redd counts are made from low flying, fixed-wing aircraft, helicopter or on foot depending on which technique is best suited for a particular stream. Redds are counted when preliminary observations indicate that spawning is over and be-fore redds become obscure from algae and silt.

Carcass surveys ideally are made three times during post-spawning die-off to eliminate bias in sex ratios noted early and late in the season.

Chinook redd counts are included for selected tributaries of the Clearwater River to assist evaluation of reintroduction efforts.

# **FINDINGS**

Redd count surveys and sex and age composition data collections were made during the late summer of 1980. These data are summarized in attached tables and maps.

For the second consecutive year, a record low number of redds was counted in areas used by spring and summer run fish. The abundance of jack salmon kelts on the spawning grounds was again low in 1980, which gives rise to a forecast of small runs for 1981.

Due to the extreme scarcity of kelts on spawning grounds in 1980, the customary carcass surveys for age and sex composition data were not conducted on some waters. The waters not surveyed were Lemhi River, Marsh Creek drainage, upper Salmon River, upper Valley Creek and upper East Fork Salmon River.

Table 1. Salmon River drainage chinook salmon redd counts, 1980.

Streams	197	5 1970	6 1977	1978	1979	5-Year average	1980
Spring chinook		<u></u>				<u> </u>	
Alturas Lake Creek Upper Salmon River Upper Valley Creek Upper Yankee Fork Upper East Fork Herd Creek Marsh Cr. Drainage Lemhi River North Fork Salmon R.	60 509 189 60 348 11 201 366 14	16 378 nc 40 75 27 48 241 6	85 698 18 6 168 6 98 474 31	303 1,707 141 33 841 26 270 796 29	29 205 25 18 57 2 47 154 nc	99 699 93 31 298 14 133 406 20	7 47 6 0 6 0 9 47 nc
Bear Valley Creek Elk Creek Sulphur Creek Upper Big Creek Subtotal	215 169 50 77 2,269	76 61 14 22 1,004	129 86 5 9	184 208 64 <u>95</u> 4,697	69 49 15 15 685	135 115 30 44 2,117	15 8 2 <u>4</u> 151
Summer chinook							
Lower Salmon River Lower Valley Creek Lower East Fork Loon Creek	45 80 38 32	44 43 39 31	94 63 136 62	349 219 nc 29	nc 15 33 nc	133 84 62 39	11 4 0 9
South Fork Salmon R. Johnson Creek Secesh RLake Cr.	238 69 10	241 68 17	226 81 <u>27</u>	251 113 <u>91</u>	115 36 20	214 73 <u>33</u>	116 24 <u>20</u>
Subtotal	512	483	689	1,052	219	638	184
Unclassified Spawners							
Camas Creek Lower Yankee Fork West Fork Yankee Forl Subtotal	128 35 k <u>55</u> 218	61 3 11 75	84 12 <u>37</u> 133	148 27 <u>98</u> 273	15 nc 13 28	87 19 <u>43</u> 149	17 0 <u>2</u> 19
Total	2,999	1,562	2,635	6,022	932	2,904	354

Table 2. Clearwater River drainage chinook salmon redd counts, 1980.

	Numbe	er of r	edds cou	nted in	:	5-Year	
Streams	1975	1976	1977	1978	1979	average	1980
Selway Drainage							
Selway River	21	<b>5</b> 8	97	125	21	64	36
Bear Creek	5	14	18	13	3	11	7
Running Creek	0	3	2	6	0	2	1
Whitecap Creek	1	4	1	nc	2	2	3
Moose Creek	4	15	_23	<u>17</u>	4	13	4
Subtotal	31	94	141	161	30	92	51
Lochsa Drainage							
Crooked Fork	6	36	51	37	6	27	16
Brushy Fork	4	_13_	15	25	12	14	10
Subtotal	10	49	66	62	18	41	26
South Fork Drainage							
Newsome Creek	10	3	9	14	6	8	5
Crooked River	41	8	50	23	2	25	8
Red River	_20	<u>15</u>	50	_52	20	31	31
Subtotal	71	26	109	89	28	64	44
Total	112	169	316	312	76	197	121

Table 3. Length frequency distribution for spring chinook kelts, 1980.

Fork length (in.)		lley Cr. emale	Elk ( Male I	Creek Eemale		r Creek Temale	Big Creel <u>Male</u> l	
22 23 Subtotal	0	0	0.	0	0	0	0	0
24 25 26 27 28	1 2	1			0	0		
29 30 31	۷	ı			U	U		
Subtotal	3	1	0	0	0	0	0	0
32 33 34		2						2
35 36 37		3						
38 39 40 41	1	1						
42 43 44 45					· •			
Subtotal Grand total	2 5	6 7	0 0	Q O	0 0	0 0	0 0	2 2

Table 4. Length frequency distribution for summer chinook kelts, 1980.

Fork length (in.)	Johnson Creek Male Female	Lake Creek Secesh River <u>Male</u> Female	South Fork Salmon River Male Eemale
19 20 21	1		
22 23 24 Subtotal	2 1 4 0	2 2 0	0 1
25 26 27 28 29 30 31 32	1 3 5 1 3 1 2 4 4 3 1 2 1	1	2 1 1
33 Subtotal	20 11	1 1	4 7
34 35 36 37 38 39 40 41 42 43	1 1 1 2 1 1		1
44 45 46 Subtotal Grand total	4 3 28 14	0 0 3 1	0 1 4 3

Table 5. Percent age composition, by sex, of spring chinook kelts, 1980.

Stream and age group	Males	Females	Males & Females
Bear Valley Creek			
Age group 3 <sub>2</sub>	0	0	0
Age group 42	60	14	33
Age group 52	30	86	67
	100	100	100
	(n=5)	(n=7)	(n=12)
Elk Creek			
Age group 3 <sub>2</sub>	0	0	0
Age group 42	0	0	0
Age group 52	0	0	0
	0	0	0
	(n=0)	(n=0)	(n=0)
Sulphur Creek			
Age group 3 <sub>2</sub>	0	0	0
Age group 42	0 0	0 0	0 0
Age group 52		•	
	0	(7-0)	0 (n=0)
	(n=0)	(n=0)	(11-0)
Big Creek (Upper)			
Age group 3 <sub>2</sub>	0	0	0
Age group 42	0 0	100	100 0
Age group 52	U	0	U
	0	100	100
	(n=0)	(n=2)	(n=2)

Table 6. Percent age composition, by sex, of summer chinook kelts, 1980.

Stream and age group	Males	Females	Males & Females
Johnson Creek	3.4		10
Age group 3 <sub>2</sub>	14 72	0 79	10 74
Age group 42 Age group 52	14	21	16
	100 (n=28)	100 (n=14)	100 (n=42)
Lake Creek and Secesh River			
Age group 3 <sub>2</sub>	67 33	0	50
Age group 42 Age group 52	33 0	100 0	50 0
	100	100	100
	(n=3)	(n=1)	(n=4)
South Fork Salmon River			
Age group 3 <sub>2</sub>	0	33	14
Age group 42 Age group 52	100	33 34	71 15
	100	100	( -)
	(n=4)	(n=3)	(n=7)

APPENDIX

# LEGEND

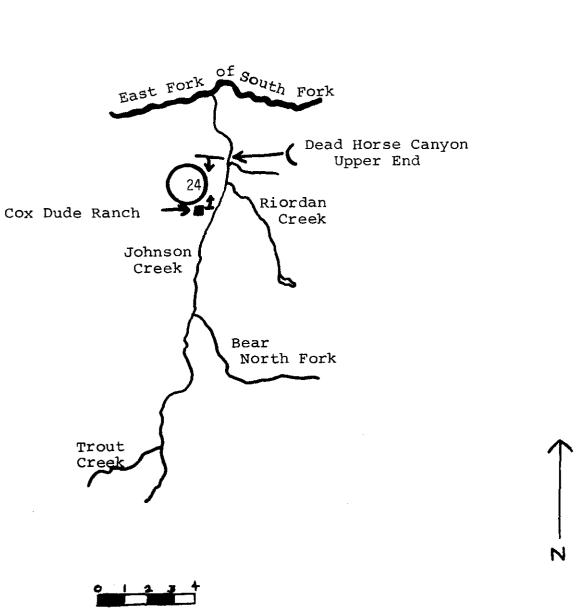
Ground Survey Sections Aerial Survey Sections Ground Redd Counts Aerial Redd Counts Aerial-Ground Check Areas Aerial-Ground Check Area Count Migratory Block Road Trail Forest Service Stations Landing Strip XXXXX Fence Pack Bridge Highway Bridge

DRAINAGE Salmon River	SURVEY DATE	9/3/80	
	MAP SCALE _	1/4" - 1	mile
OBSERVATION CONDITIONS Excellent	OBSERVER	Reid	
South Fork TIM	ING: Early	On Time	Late (mark one)
G.S.	REMARKS:	Rain the pas	t two days has made
Secesh To	Cascade	redds hard t	o pick out. Not a
River Elk Creek		good count.	They do look reason-
} -		able though.	
		ubje dilougite	
McCall			
Bridge			
East Fork of South Fork			
South Fork			
14) To Yellow	pine		
Krassel R.S.		Ricia	Salmon River
Indian Creek Landi	ing Field		
Swimming Hole  Brown's Airfield			2
Brown's Allifett			
6/ Poverty Flat G.S.			1
♣. → Pack Bridge			
<b>* * * * * * * * * *</b>			<i>i</i> )
<b>)</b>	ТО	Warren <b>r</b>	استرک کرک
<i>چ</i> ر س		Ì	1
₩arm Lake G.S.		` , .	<b>~</b> 1
接· <b>◆</b>			
To Stanley			
) ( Warm Lake			
4		$\uparrow$	
Stolle Meadows	G.S.		
Blue	3 4	 	
Point Cr.		N	

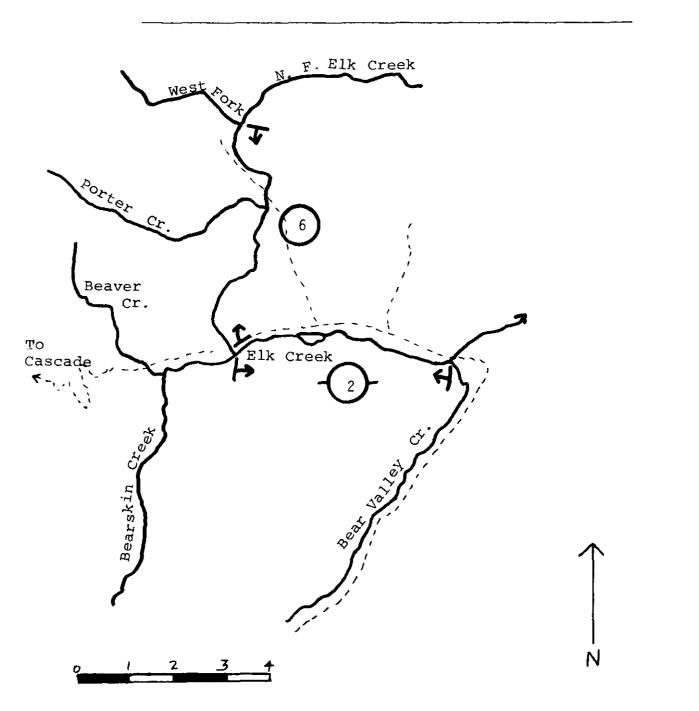
Lake Cr - 8/19/80

DRAINAGE S. F. Salmon River	SURVEY DATE <u>Secesh - 8/31/80</u>
STREAM Secesh and Lake Creek	MAP SCALE <u>1" = 4 miles</u>
OBSERVATION CONDITIONS Fair	OBSERVER Anderson
TIMING: Early On Time Late	(mark one)
REMARKS:	
Lake	
Creek	
Willow	
Creek	
warm [5]	
Summit Spring Creek	
Creek 15	
Loon Loon Gulch Bri	dge round-end of road
Lake	
Loon	lue Lake
Creek	Creek
Enos Creek	
<i>\</i>	
Lick Creek	
المستمتر	
كننا	المخت
·/	South Fork Salmon
	$\wedge$
0 1 2 3 4	
	7

DRAINAGE	E.F.	of South	<u>Fork</u>	SURV	EY DAT	E 9/3/80	·
STREAM _	Johnson	Creek	<del></del>	MAP	SCALE .	1" = 4 miles	
OBSERVAT	ION COND	ITIONS		OBSE	RVER _	Reid	
TIMING:	Early	On Time	Late	(mark	one)		
REMARKS:	<u></u>	<del></del>					_
		<del></del>			<del></del>		_



SURVEY DATE 9/4/80
MAP SCALE 1" = 2 miles
OBSERVER Reid and Anderson
mark one)



DRAINAGE M. F. Salmon River	SURVEY DATE 7/4/80
STREAM Bear Valley Creek	MAP SCALE 1" = 2 miles
OBSERVATION CONDITIONS Excellent	OBSERVER Reid and Anderson
TIMING: Early On Time Late	(mark one)
REMARKS:	· · · · · · · · · · · · · · · · · · ·
	<i>*</i>
	Salmon River
	Salmo
a*	Valley Creek H
Elk Creek	
JIK Creek	
7	\display \text{\text{display}}
	Creek
	된 -년 [14
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$\int \int_{\omega}^{\omega}$	
Sack Creek Cach	
duo Creek	
C C C C C C C C C C C C C C C C C C C	<b>↑</b>
creek Cachecreek	
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	IV
Danten Bros	2 3 4
Porter Bros. Dredges	
· <i>1</i>	

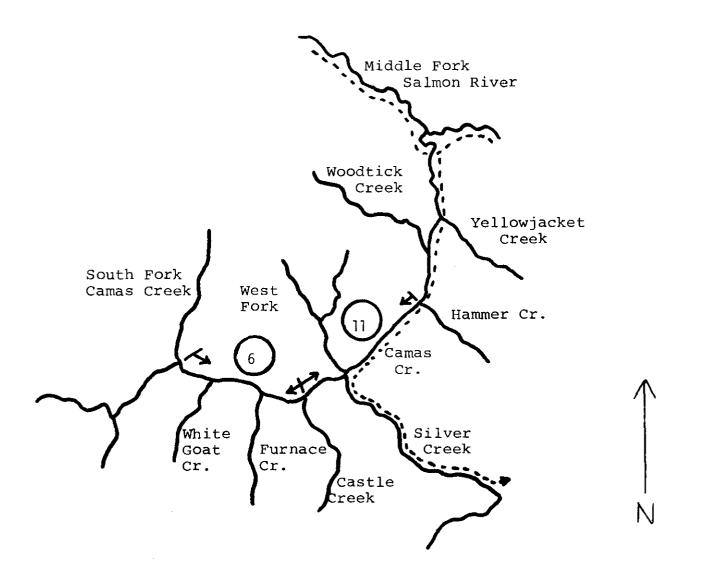
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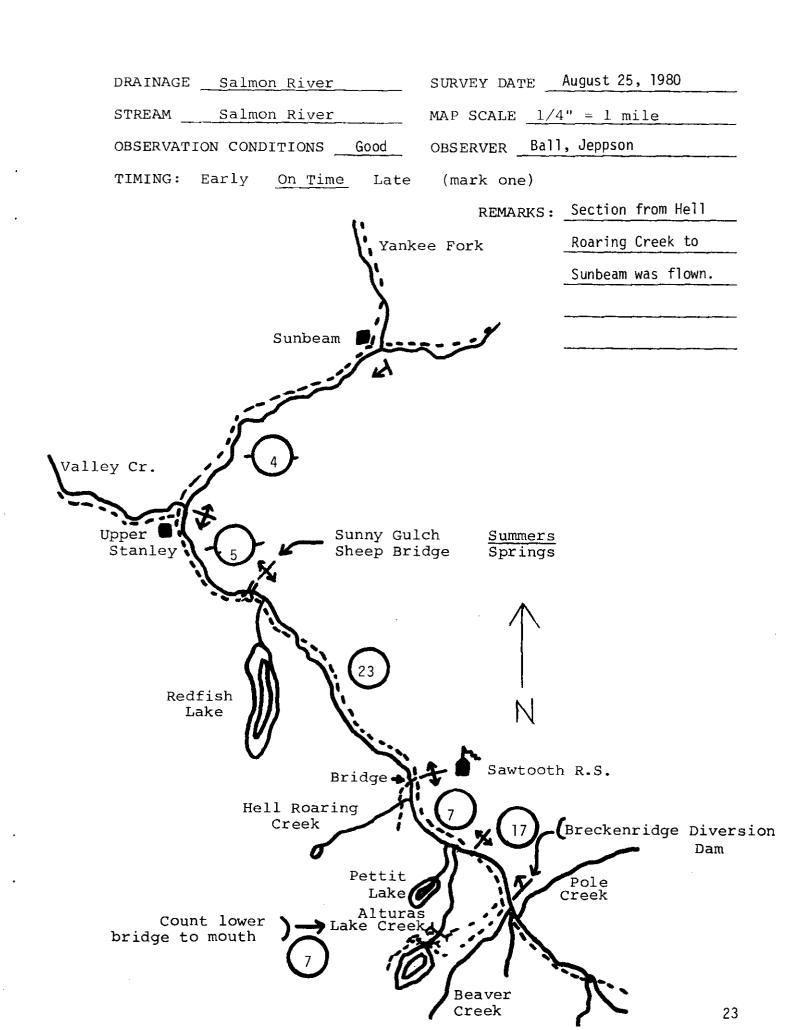
DRAINAGE M. F. Salmon River SURVEY DATE August 14, 15, 1980
Marsh, Beaver, Knapp, MAP SCALE 2/3" - 1 mile STREAM Capehorn Creeks OBSERVER Ball, Meyers, Gard, Somes OBSERVATION CONDITIONS Good TIMING: Early On Time Late (mark one) REMARKS: Middle Fork Salmon River Bear Valley Creek Marsh Creek - Bridge Creek Banner Creek Beaver Bear Creek Creek (Airport to Capehorn Cr.) Winnemucca To Beaver Ponds Creek Knapp Creek Capehorn Airport

DRAINAGE	M. F. Sa	lmon River	SURVEY DATE	8/26/80
STREAM _	Sulphur C	reek	MAP SCALE	1/6" = 1 mile
OBSERVATI	ION CONDITIO	ONS Excellent	OBSERVER Reid	and Anderson
TIMING:	Early On	Time Late (r	mark one)	
REMARKS:			<u>, , , , , , , , , , , , , , , , , , , </u>	
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stream me	eanders over	point where the to the hill-	ie c	
meadow.)	the north ed	ige of the		
			` '	

DRAINAGE	M. F. Salmon River	SURVEY DATE August 28, Sept. 3, 1980
STREAM	Camas Creek	MAP SCALE 1/4" = 1 mile
OBSERVATI	ON CONDITIONS Good	OBSERVER Ball, Gard
riming:	Early On Time Late	(mark one)
REMARKS:	Flew upper section 9/3/80	•
		·

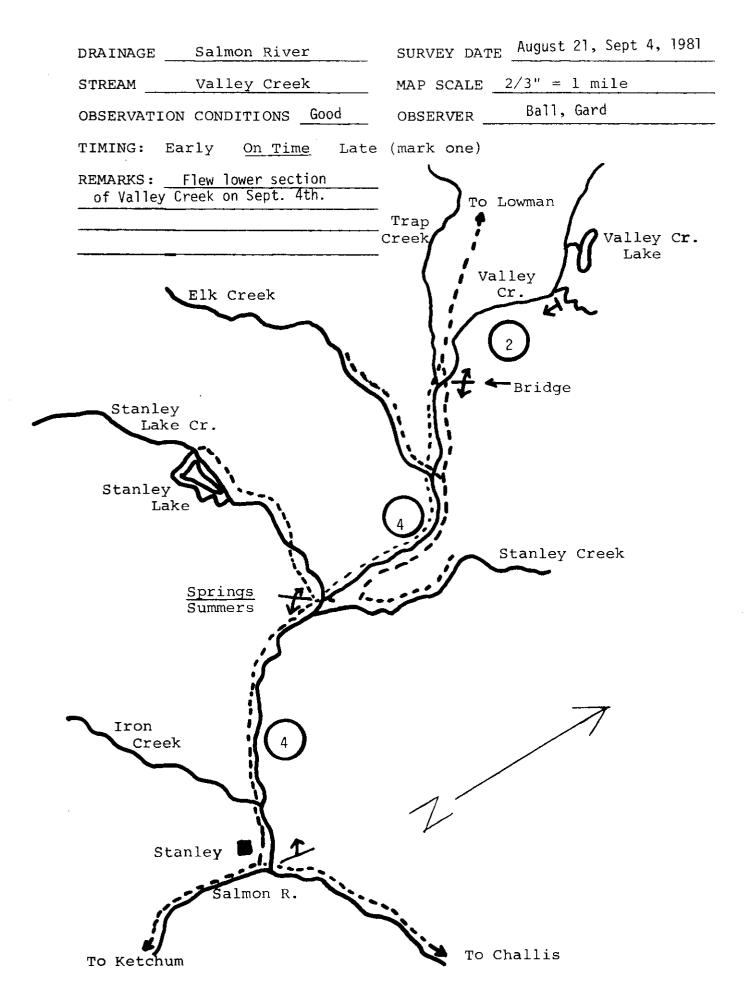


DRAINAGE M. F. Salmon River	SURVEY DATE 8/17/80
STREAM Big Creek	MAP SCALE 1" = 4 miles
OBSERVATION CONDITIONS Excellent	OBSERVER Reid and Anderson
TIMING: Early On Time Late	(mark one)
Logan Creek  (Upper)  (Lower)  Monumental Creek	Smith Creek  Crooked Creek
Rush Creek  Wall Cree  Middle Fk Salmon River	k



DRAINAGE Salmon River	SURVEY DATE Sept. 4, 1980
STREAM Salmon River	
OBSERVATION CONDITIONS Good	OBSERVER Kent Ball
TIMING: Early On Time Lat	te (mark one)
REMARKS:	
<del></del>	- براد م
	Ellis
	Pahsimeroi River
-(N.C)-	
•	Salmon River
Challis	
	Bridge
	7 !!
Yankee	x);
Fork	- Jr. Ann
	3
المبينية بمهان	East Fork
Sunbeam	Salmon River
Warm Creek Springs	معتمتين
Creek	1

DRAINAGE Salmon River SURVEY DATE STREAM Salmon River MAP SCALE 1/4" = 1 mile OBSERVATION CONDITIONS OBSERVER TIMING: Early On Time Late (mark one) REMARKS: Not counted. Salmon Salmon River Pahsimeroi River Ellis



DRAINAGE Salmon River	SURVEY DATE	August 19, 20, 1980
STREAM Yankee Fork	MAP SCALE	1/3" = 1 mile
OBSERVATION CONDITIONS Fair, good	OBSERVER	Ball, Gard
TIMING: Early On Time Late	(mark one)	
REMARKS: Flew lower Yankee Fork	<	
- <del></del>		
	,	i
	نننزن)	Mackay
	المباركين	Creek
	11 6	
Ten Mile Cr.	<i>!</i> :	
~~~\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<b>,</b>	
<u>K</u>		
<u>[</u> /		
	Nine Mile C	r.
Eight Mile Cr.	7,	
	Six Mile	Cr.
Jordan		
Creek	Five Mile Cr	•
· · · · · · · · · · · · · · · · · · ·	•	
Lightning Creek		
) (2) X4	•	
Rame	ey Cr.	~
W. Fk. (0)	-1	1
Deadwood		
Creek F	Pole Flat Fore	est Camp
<b>X</b>	· · · · · · · · · · · · · · · · · · ·	To Challis
*	المحتنية ب	A
Sunbeam	مرت و	\ \
معنن ب		
To Stanley		

SURVEY DATE August 26, 1980 DRAINAGE \_\_\_Salmon River STREAM East Fork MAP SCALE 1/6" = 1 mile OBSERVER Ball, Jeppson, Gard OBSERVATION CONDITIONS Good TIMING: Early On Time Late (mark one) REMARKS: Lower section flown. Salmon River Jimmy Smith Herd Creek Lake Creek 3.5 miles Boulder below Creek Ranch Boulder Cr. Little Boulder (spring/summer boundary is Creek 3.5 miles below Boulder Cr.) Germania Creek Bowery G.S.

SURVEY DATE Sept. 4, 1980 DRAINAGE Salmon River MAP SCALE  $_1/6$ " = 1 mile STREAM Lemhi River OBSERVER Reingold, Gard, Meyers, Ball OBSERVATION CONDITIONS Good TIMING: Early On Time Late (mark one) REMARKS: Section from Cottom Lane to mouth of Lemhi was flown on 9/5/80. Salmon City Lemhi River almon River Tendoy Basin Creek Lemhi (see remarks) Bear Valley Creek Hayden Creek Maiers Lane Cottam Creek Lane Leadore

DRAINAGE	Salmo	n River		SURVEY DAT	E
STREAM	North	Fork		MAP SCALE	1/2" = 1 mile
OBSERVATI	ON CONI	OITIONS	· · · · · · · · · · · · · · · · · · ·	OBSERVER _	
TIMING:	Early	On Time	Late	(mark one)	
<b>^</b>		To Montan	a	REMARKS:	Not counted this year.
	Twin C	N.C		Dahlonega	Creek
			#	Gibbonsvil	lle
Ň	S	North For almon Rive			
	Hughes Cree	k N.C.	! <u> </u>	Sheep Cree	ek
. Hull Creek		le s	North	Fork Ranger	Station
<u></u>				·	
		,			
North F	ork •				
To Shoup		Ties To	Salmon	1	

DRAINAGE	Clearwater River	SURVEY DATE	Sept. 4, 1980
STREAM	Selway River & tributaries	MAP SCALE	1/8" = 1 mile
OBSERVATIO	N CONDITIONS Good	OBSERVER	Lindland
TIMING:	Early On Time Late	(mark one)	
REMARKS:	Sunny weather and low flows	made observation	<del>_</del> _
	conditions very good.		<u> </u>
			_
	\ (3)-	4	_
		White Cap Creek	$\prec$
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
	Paradise	Guard Station	
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	India	n Creek	
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	Selway	ξ	~
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	er C	j	
ater RI	15 Magrude	er Crossing	11
18 Clearw		or orosoning	.//
Little Clearwater Riv	3 Dee	p_Creek	
	Magrude	r R.S.	
•			
		· ·	
	}		
	Thompson Flat		
	Swet Creek		

•	DRAINAGE	Clearwater Riv	/er	SURVEY DATE	Sept. 4, 1980
	STREAM _	Selway River & t	ributaries	MAP SCALE	1/8" = 1 mile
	OBSERVATI	ON CONDITIONS	Good	OBSERVER	Lindland
	TIMING:	Early On Ti	me Late	(mark one)	
	REMARKS:	Sunny weather	and low flow	us made observatio	on
		conditions ver	y good.		<del></del>
		<u> </u>			· <u>·</u>
			₹(		
			~ ,		nd /
4-	Selway F	River	North Fork		Elbows Rend Creek
		7	47	Moose Creek	Ellicedar
			Moose Cr. R.S.	4).	4
			R.S.		
;			1		
		1	Bean -		(
		(4	Bear Creek		
		/•	7	W .	
	Goat C				
	3.6	reel	•	Cub	Zeek
			4	•	
			T		
		~ M #			·
~	Running Cree		`		4
		5	)		
			with the same of t	ite Cap Creek	Coopers Flat
		Sold of the state		aradise Guard Sta	ation
					-
			1		

Aerial - Sept. 9, 1980 S. Fork Clearwater R. SURVEY DATE Ground - Sept. 5, 1980 DRAINAGE 1/4" - 1 mile MAP SCALE STREAM As noted Lindland (ground) OBSERVATION CONDITIONS Good OBSERVER Cannon (aerial) Early (On Time) Late (mark one) TIMING: Sunny weather and low flows for both ground and REMARKS: aerial counts. Elk Creek Elk City 101d Newsome Townsite Nugget Creek Red River Relief Creek

SURVEY DATE Aerial - Sept. 3, 1980 Ground - Aug. 27, 1980 DRA INAGE Lochsa River 1/4" = 1 mile MAP SCALE STREAM As noted Good Lindland OBSERVATION CONDITIONS OBSERVER Early On Time Late (mark one) TIMING: REMARKS: Both aerial and ground counts were done during sunny weather and low flows. Fox Creek (14 Brushy Fork Powell R.S. Lochsa Rive

Submitted by:

Approved by:

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